



FACULTY	AGRICULTURE, ENGINEERING AND NATURAL SCIENCES		
SCHOOL	AGRICULTURE AND FISHERIES SCIENCES		
DEPARTMENT	FOOD SCIENCE AND SYSTEMS		
SUBJECT	DAIRY SCIENCE AND TECHNOLOGY		
SUBJECT CODE	AFST 3881		
DATE	JUNE 2024		
DURATION	3 HOURS	MARKS	100

FIRST OPPORTUNITY EXAMINATION

Examiner: **Ms M.J. Kandjou**

Internal Moderator: **Dr. P. Hiwilepo-van Hal**

Moderator: **Dr P.J. Williams**

This question paper consists of **two (2)** pages excluding this front page

Instructions

- Answer all **four (4)** questions
- Calculators are allowed

QUESTION 1

Write short notes on the following:

- a) Mastitis [5]
- b) Anti-Microbial systems in raw milk [5]
- c) Effects of antibiotics residues in raw milk [5]
- d) The effect of heat on lactose. [5]

QUESTION 2

- a) Outline the three physical states of the milk constituents, with specific examples for each state. [3]
- b) Discuss in detail the composition and structure of the following milk components.
 - i) milk proteins [8]
 - ii) milk lipids [8]
- c) Briefly discuss how feed affects the composition of milk. [4]

QUESTION 3

- a) Describe the CIP method as applied in a dairy processing facility. [5]
- b) Explain the methods and principle of cream separation. [5]
- c) Calculate skimming efficiency of a centrifugal cream-separator, which produces 8.5 kg of cream containing 45 % fat from 100 kg of milk testing 4.0 % fat. [5]
- d) Calculate the amounts of whole milk with 3.9% fat and skimmed milk with 0.04% fat content needed to produce 2000 kg of standardised milk with 2.5% fat. [5]

QUESTION 4

Discuss the relationship between *Lactobacillus bulgaricus* and *Streptococcus thermophilus* in yoghurt.

[7]

- a) Outline cheese classifications. [5]
- b) Discuss the processing method for Cheddar cheese with the aid of a flow diagram. [10]
- c) Discuss the end products of cheese ripening which give cheese its

characteristic flavour and texture.

[5]

d) Describe five (5) hygienic tests carried out on milk.

[10]

END OF EXAMINATION